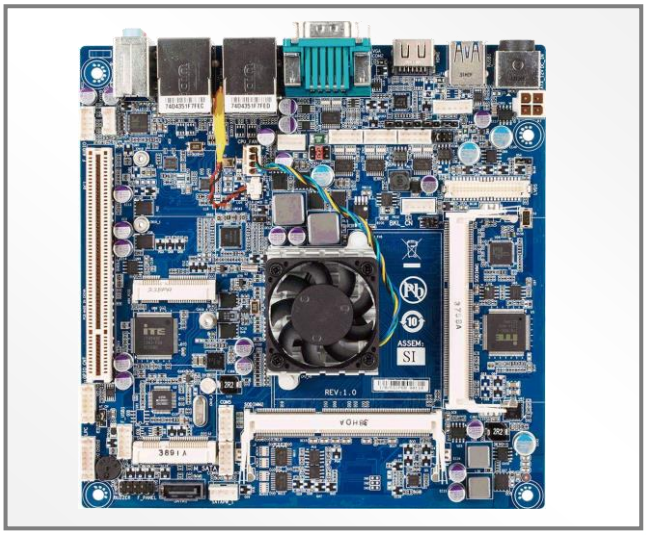
Embedded Board

BNX-I19



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User Manual

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FCC and DOC Statement on Class A

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio TV technician for help.

Notice:

1. The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
2. Shielded interface cables must be used in order to comply with the emission limits.

Warranty

1. Warranty does not cover damages or failures that are raised from misuse of the product, inability to use the product, unauthorized replacement or alteration of components and product specifications.
2. The warranty is void if the product has been subject to physical abuse, improper installation, modification, accidents or unauthorized repair of the product.
3. Unless otherwise instructed in this user's manual, the user may not, under any circumstances, attempt to perform service, adjustments or repairs on the product, whether in or out of warranty. It must be returned to the purchase point, factory or authorized service agency for all such work.
4. We will not be liable for any indirect, special, incidental or consequential damages to the product that has been modified or altered.

Static Electricity Precautions

It is quite easy to inadvertently damage your PC, system board, components or devices even before installing them in your system unit. Static electrical discharge can damage computer components without causing any signs of physical damage. You must take extra care in handling them to ensure against electrostatic build-up.

1. To prevent electrostatic build-up, leave the system board in its anti-static bag until you are ready to install it.
2. Wear an antistatic wrist strap.
3. Do all preparation work on a static-free surface.
4. Hold the device only by its edges. Be careful not to touch any of the components, contacts or connections.
5. Avoid touching the pins or contacts on all modules and connectors. Hold modules or connectors by their ends.

Important:

Electrostatic discharge (ESD) can damage your processor, disk drive and other components. Perform the upgrade instruction procedures described at an ESD workstation only. If such a station is not available, you can provide some ESD protection by wearing an antistatic wrist strap and attaching it to a metal part of the system chassis. If a wrist strap is unavailable, establish and maintain contact with the system chassis throughout any procedures requiring ESD protection.

Safety Measures

To avoid damage to the system:
• Use the correct AC input voltage range.

To reduce the risk of electric shock:
• Unplug the power cord before removing the system chassis cover for installation or servicing. After installation or servicing, cover the system chassis before plugging the power cord.

Battery:
• Danger of explosion if battery incorrectly replaced.
• Replace only with the same or equivalent type recommend by the manufacturer.
• Dispose of used batteries according to local ordinance.

Before Using the System

Before using the system, prepare basic system components.

If the system comes as a barebone; that is, none of the key components, including processor, memory, and hard drive has been pre-installed as part of your purchase, you will need to at least ensure a compatible counterpart is located and installed.

You will also need a few external system peripherals intended for the use of the system, a common pool with at least a keyboard, a mouse, and a monitor is thus suggested.

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Chapter 1
General Information

1.1 Main Feature

Mini-ITX System Board

BNX-I19 is a standard Mini-ITX motherboard featuring Intel® Bay Trail Quad-Core Celeron J1900 2.0GHz onboard processor, and two Dual Channel DDR3 SO-DIMM slots up to 8GB DDR3 1066/1333/1600MHz SDRAM with Non-ECC support and integrated HD graphic controller.

- Intel® Bay Trail Quad-Core Celeron J1900 2.0GHz Onboard Processor
- Two DDR3 RAM Slots up to 16GB
- One SATA Port
- Two Display Ports: VGA, HDMI
- Six Series Ports: 1* Edge RS-232, 1* RS-232/422/485 Header, 4* RS-232 Headers
- One USB 3.0 ports: 1* Edge Port
- Five USB 2.0 Ports: 4* Edge Ports, 1* Internal Port
- Two Realtek GbE LAN Ports
- 1* Full-sized mSATA Slot
- 1* Full-sized miniPCIe Slot
- 3* Edge Audio Jacks
- 1* PCI Slot

1.2 Specifications

Core Engine	Processor	Onboard Intel® Bay Trial Quad-Core Celeron® J1900 2.0GHz Processor
	Memory	2x DDR3 1066/1333 SO-DIMM Slots, up to 8GB, Non-ECC/Non-Buffered Memory Module
	Display	Intel® HD Graphics, support 18/24 bit Single Channel LVDS
Ethernet	Controller	Onboard 2x Realtek RTL8111G PCIe GbE Controllers
Storage	SATA	1x SATA2 Port
	mSATA	1x
Expansion	PCI	1x
	miniPCIe	1x Full-sized
Edge I/O	Power	1x 12V DC Jack
	COM	1x DB9 RS-232
	Display	1x DB15 VGA + 1x HDMI
	USB	1x USB 3.0 + 4x USB 2.0
	LAN	2x RJ45 GbE
	Audio	3x Audio Jacks
Internal I/O	Front Panel	1x Front Panel Switch/LED Header
	COM	1x RS-232/422/485 + 4x RS-232
	SATA Power	1x 4-pin SATA Power
	USB	1x USB 2.0 Pin Header
	Audio	1x Front Audio Pin Header + 1x 4-pin Speaker Out
	PS/2	1x 6-pin PS/2 Pin Header for Keyboard and Mouse
	Panel	1x LVDS + 1x Backlight Connector
	GPIO	1x 8bit GPIO Pin Header
	Fan	2x Fan Connectors
Other	H/W Monitoring	Monitor temperature, voltage, and fan speed, auto-throttling control at CPU overheat
	WDT	1 min increment from 1 to 255 min, 1 sec increment from 1 to 255 sec
Environment	Operating Temp.	0ºC ~ 60ºC
	Storage Temp.	-20ºC ~ 70ºC
	Humidity	10% ~ 90% (Non-Condensing)
Mechanical	Dimension	170mm (W) x 170mm (D)

1.3 Board Layout

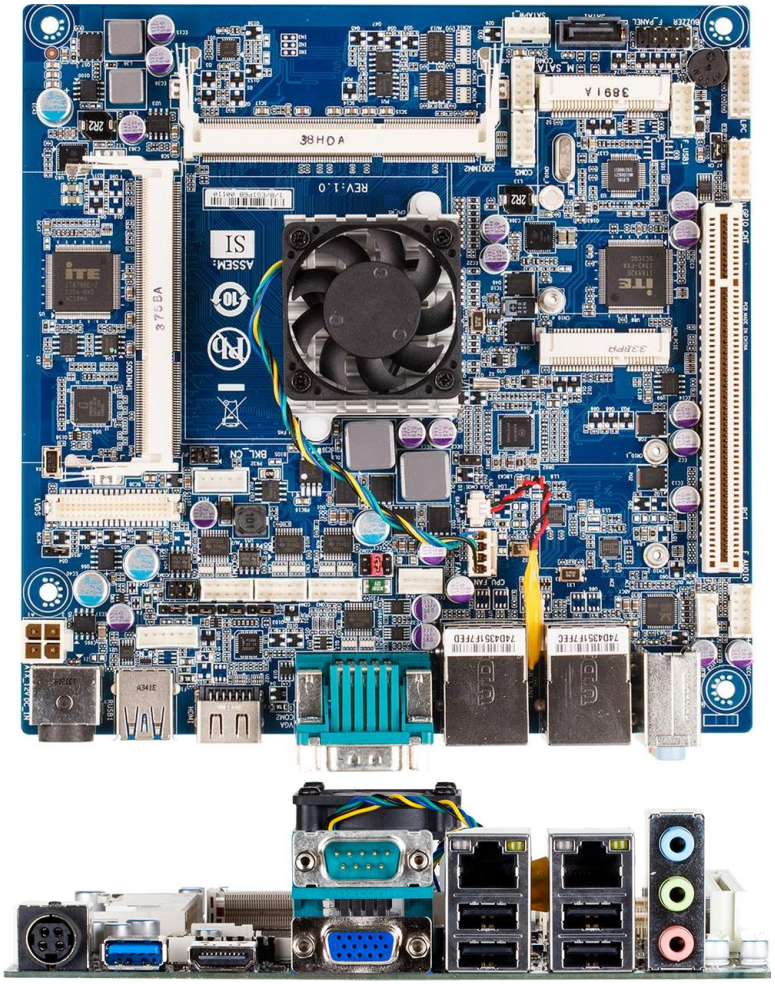


Figure 1.1: Board Layout of BNX-I19

Chapter 2
Preparation

2.1 Before You Begin

A stable and clean working environment are essential. Dust and dirt can get into components and cause a malfunction. Use containers to keep small components separated.
Adequate lighting and proper tools can prevent you from accidentally damaging the internal components. Most of the procedures that follow require only a few simple tools, including the following:

- A Philips screwdriver
- A flat-tipped screwdriver
- A set of jewelers Screwdrivers
- A grounding strap
- An anti-static pad

Using your fingers can disconnect most of the connections. It is recommended that you do not use needle-nosed pliers to disconnect connections as these can damage the soft metal or plastic parts of the connectors.

Before working on internal components, make sure that the power is off. Ground yourself before touching any internal components, by touching a metal object. Static electricity can damage many of the electronic components. Humid environment tend to have less static electricity than dry environments. A grounding strap is warranted whenever danger of static electricity exists.

2.2 Precautions

Computer components and electronic circuit boards can be damaged by discharges of static electricity. Working on the computers that are still connected to a power supply can be extremely dangerous. Follow the guidelines below to avoid damage to your computer or yourself:

- Always disconnect the unit from the power outlet whenever you are working inside the case.
- If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.
- Hold electronic circuit boards by the edges only. Never touch the components on the board unless it is necessary to do so. Do not flex or stress the circuit board.
- Leave all components inside the static-proof packaging that they shipped with until they are ready for installation.
- Use correct screws and do not over tighten screws.

2.3 Setting Jumpers

A jumper is the simplest kind of electric switch. It consists of two metal pins and a cap. When setting the jumpers, ensure that the jumper caps are placed on the correct pins. When the jumper cap is placed on both pins, the jumper is SHORT. If you remove the jumper cap, or place the jumper cap on just one pin, the jumper is OPEN. Please see the following illustrations

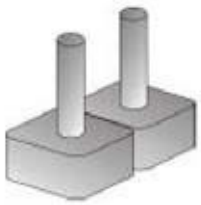
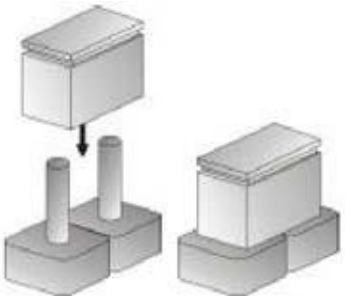
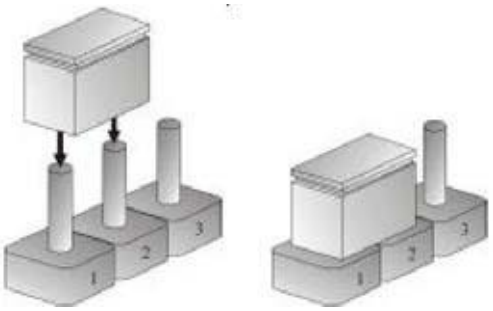
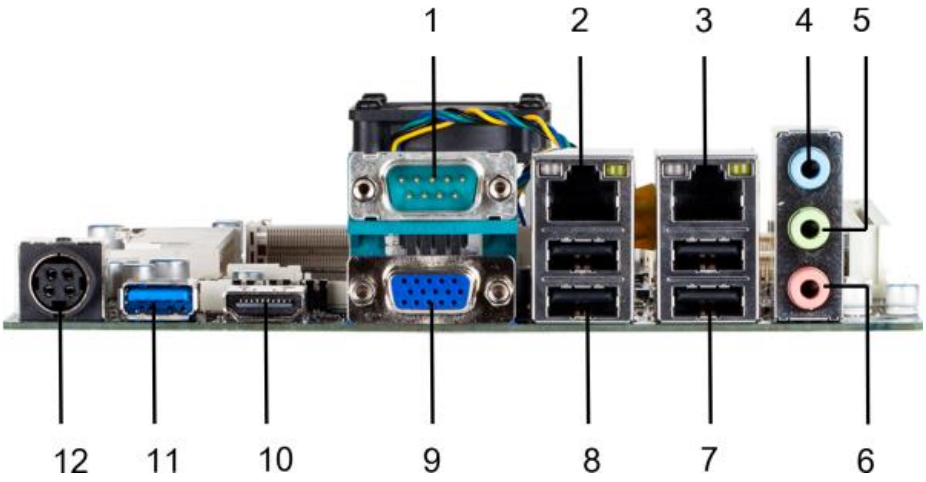
<table>
<tr><td rowspan="2">The illustrations on the right show a 2-pin jumper. When the jumper cap is placed on both pins, the jumper is SHORT. If you remove the jumper cap, or place the jumper cap on just one pin, the jumper is OPEN.</td><td>  </td><td>  </td></tr>
<tr><td>Open (Off)</td><td>Short (On)</td></tr>
<tr><td>These illustrations show a 3-pin jumper. Pins 1 and 2 are SHORT.</td><td colspan="2">  </td></tr>
</table>

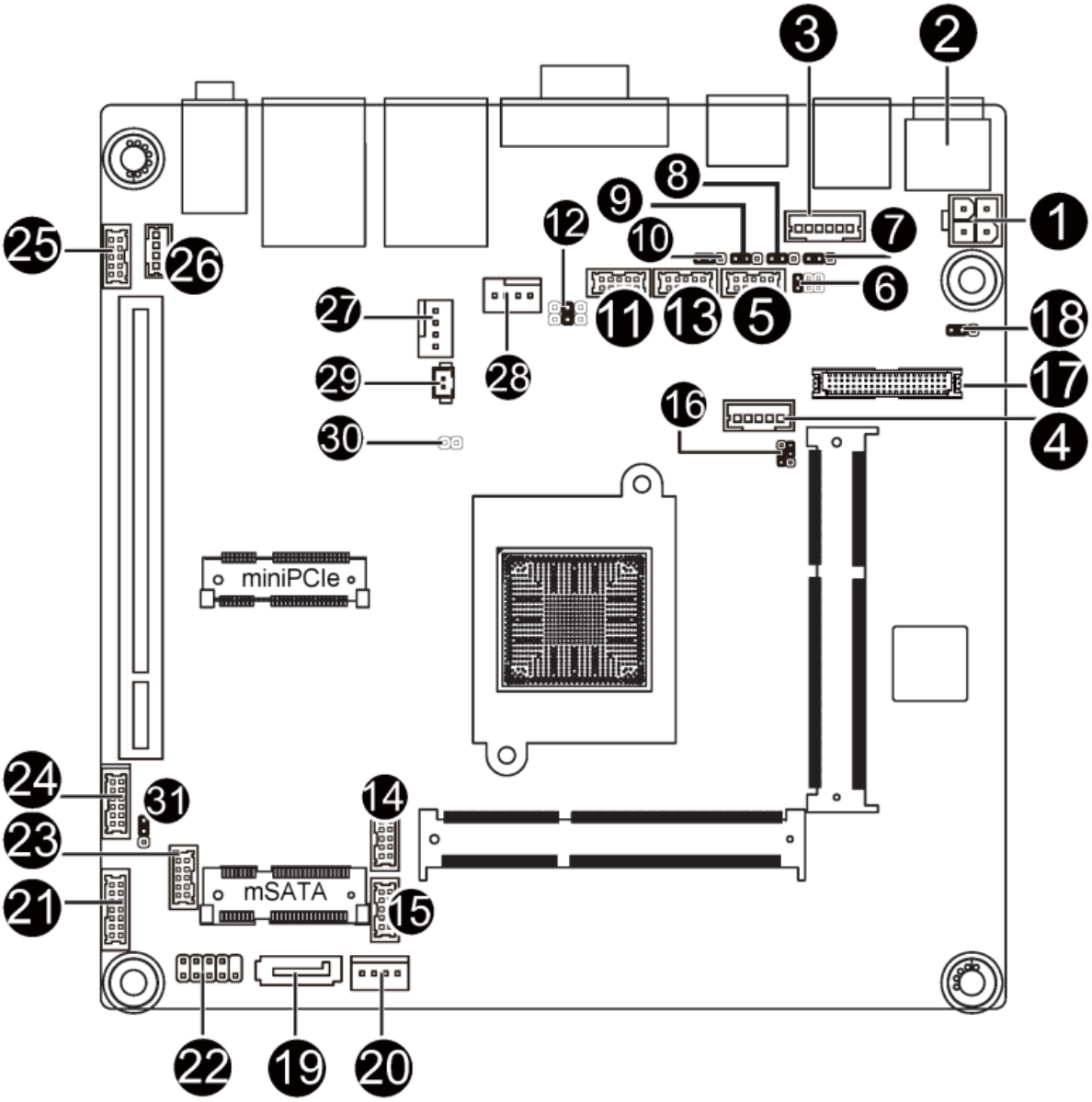
Table 2-1: Setting Jumpers

2.4 Back Panel Connectors



1. DB9 RS-232 COM2
2. LAN1
3. LAN2
4. Line-In Jack
5. Line-Out Jack
6. Microphone Jack
7. 2* USB 2.0
8. 2* USB 2.0
9. 1* DB15 VGA
10. HDMI
11. 1* USB 3.0
12. 12Vdc Power Input Jack

2.5 Locations Of Jumpers and Connectors



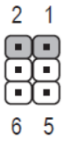
List of Onboard Connectors

1	2x2 12Vdc Power Input Connector
2	12Vdc Power Input Jack
3	PS/2 Keyboard Mouse Header
4	BLK_CN Panel Backlight Connector
5	COM1 RS-232/422/485
6	JCOM1 COM1 RS-232/422/485 Selection Jumper
7	JRS3 COM1 RS-232/422/485 Selection Jumper
8	JRS2 COM1 RS-232/422/485 Selection Jumper
9	JRS4 COM1 RS-232/422/485 Selection Jumper
10	JRS1 COM1 RS-232/422/485 Selection Jumper
11	COM3 RS232
12	JCOM3 COM3 RI 5V/12V Selection Jumper
13	COM4 RS-232
14	COM5 RS-232
15	COM6 RS-232
16	JP2 LVDS GPIO_1 & GPIO_2 Control Jumper
17	LVDS
18	JRS6 LVDS Enable/Disable Jumper
19	SATA3 Connector
20	SATA Power Connector
21	LPC Low Pin Connector
22	F_Panel Front Panel Header
23	F_USB1 USB Header
24	GPIO_CNT GPIO Connector
25	F_AUDIO Front Panel Audio Header
26	SPK_OUT Audio Amplifier Connector
27	CPU_FAN
28	SYS_FAN
29	BAT_CON Battery Socket
30	CLR_CMOS Clear CMOS Jumper
31	AT_CN AT/ATX Mode Selection Jumper

2.6 Jumpers

▶ COM3 RI 5V/12V Selection Jumper

JCOM3

	Pin	Definition
	1-2 Closed	5V
	3-4 Closed	RI
	5-6 Closed	12V

▶ LVDS Panel GPIO_1 & GPIO_2 Control Jumper

Pin	Definition
2-4, 3-5	1024x768 (Default)
1-3, 4-6	1024x600

▶ LVDS Enable/Disable Jumper

Pin	Definition
1-2	Enable (Default)
2-3	Disable

▶ Clear CMOS Jumper

Pin	Definition
Open	Normal Operation (Default)
Close	Clear CMOS

▶ AT/ATX Mode Selection Jumper

Pin	Definition
1-2	AT Mode
2-3	ATX Mode (Default)

▶ COM1 RS-232/422/485 Selection Jumper

JRS1/JRS2/JRS3/JRS4

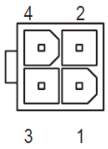
	Pin	Definition
	1-2 Closed	RS-232
	2-3 Closed	RS-422/485

JCOM1

	Pin	Definition
	1-2 Closed	RS-232
	3-4 Closed	RS-422
	5-6 Closed	RS-485

2.7 Internal Connectors

2x2 12Vdc Power Input Connector



Pin	Definition	Pin	Definition
1	GND	2	GND
3	+12V	4	+12V

12Vdc Power Input Jack

Pin	Definition	Pin	Definition
1	GND	2	GND
3	Vin	4	Vin
5	GND	6	GND
7	GND	8	GND
9	GND		

PS/2 Keyboard Mouse Header

Pin	Definition	Pin	Definition
1	PS Power	2	MCLK
3	MDATA	4	KCLK
5	KDATA	6	GND

Panel Backlight Connector

Pin	Definition	Pin	Definition
1	VCC	2	BKLCTL
3	ENABKL	4	GND
5	+12V		

SATA Power Connector

Pin	Definition	Pin	Definition
1	+12V	2	GND
3	GND	4	VCC

COM1

RS-232

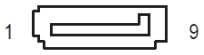
Pin	Definition	Pin	Definition
1	RXD	2	DCD
3	DTR	4	TXD
5	DSR	6	GND
7	CTS	8	RTS
9	NC	10	RI

COM3/COM4/COM5/COM6

RS-232

Pin	Definition	Pin	Definition
1	RXD	2	DCD
3	DTR	4	TXD
5	DSR	6	GND
7	CTS	8	RTS
9	NC	10	RI

SATA1 Connector

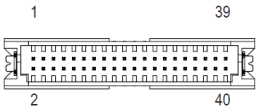


Pin	Definition	Pin	Definition
1	GND	6	RXP
2	TXP	7	GND
3	TXN	8	VCC
4	GND	9	GND
5	RXN		

SATA1 Connector

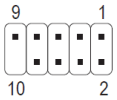
Pin	Definition	Pin	Definition
1	LAD0	2	+3.3V
3	LAD1	4	-PLTRST2_N
5	LAD2	6	-LFRAME
7	LAD3	8	LPC25
9	SERIRQ_N	10	GND
11	+5V	12	GND
13	+5V	14	GND

LVDS Connector



Pin	Definition	Pin	Definition
1	VCC3	21	A5P_C
2	VCC	22	A4P_C
3	VCC3	23	A5M_C
4	VCC	24	A4M_C
5	SPC0	25	GND
6	SPD0	26	GND
7	GND	27	A7P_C
8	GND	28	A6P_C
9	A1P_C	29	A7M_C
10	A0P_C	30	A6M_C
11	A1M_C	31	GND
12	A0M_C	32	GND
13	GND	33	CLK2P_C
14	GND	34	CLK1P_C
15	A3P_C	35	CLK2M_C
16	A2P_C	36	CLK1M_C
17	A3M_C	37	GND
18	A2M_C	38	NC
19	GND	39	+12V
20	GND	40	+12V

Front Panel Header



Pin	Definition	Pin	Definition
1	HD LED+	2	Power LED+
3	HD LED-	4	GND
5	GND	6	Power Switch+
7	Reset	8	GND
9	NC		

F_USB1 USB 2.0 Header

Pin	Definition	Pin	Definition
1	VCC	2	VCC
3	USB-	4	USB-
5	USB+	6	USB+
7	GND	8	GND
9	GND	10	GND

GPIO Connector

Pin	Definition	Pin	Definition
1	GPO_1	2	GPI1
3	GPO_2	4	GPI2
5	GPO_3	6	GPI3
7	GPO_4	8	GPI4
9	SMCLK_N	10	SMDATA_N
11	+5V	12	GNG

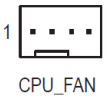
Front Panel Audio Header

Pin	Definition	Pin	Definition
1	MIC_L	2	GND
3	MIC_R	4	-ACZ_DET
5	HPOUT_R	6	GND
7	FAUDIO_J	8	NC
9	HPOUT_L	10	GND

Audio Amplifier Connector

Pin	Definition
1	Speaker_Out R+
2	Speaker_Out R-
3	Speaker_Out L-
4	Speaker_Out L+

CPU/System Fan Connector



Pin	Definition
1	GND
2	+12V
3	Sense
4	Speed Control

Battery Cable Connector

Pin	Definition
1	RTC_Reset
2	GND

Chapter 3
Operation

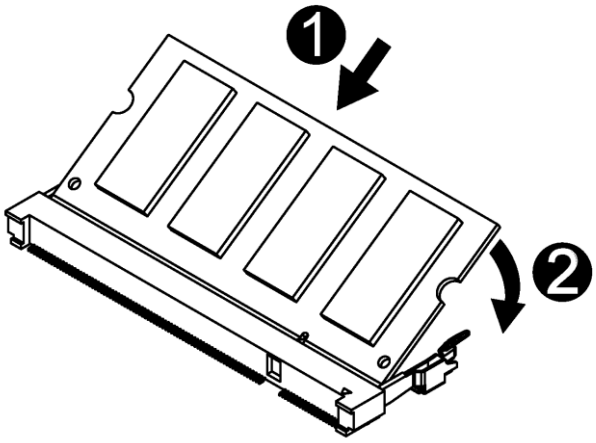
3.1 System Memory

BNX-I19 has Intel® Bay Trail Quad-Core Celeron J1900 onboard processor that supports dual channel non-ECC, un-buffered DDR3-1066/1333/1600MHz memory modules. Two SO-DIMM slots support up to 8GB Memory Capacity.

3.2 Installing Memory

To install Memory

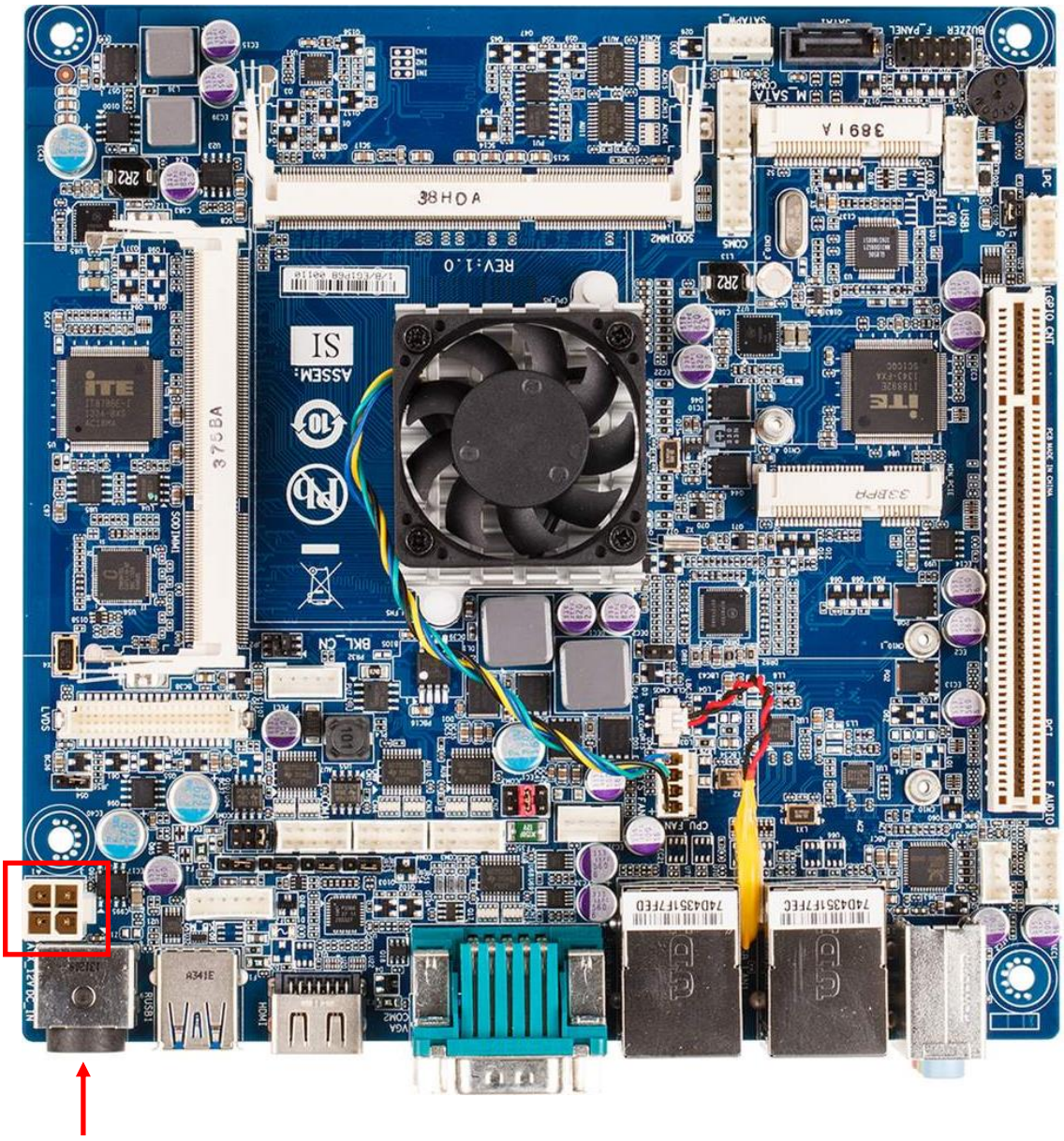
1. Make sure the “Key” on Memory module and slot are perfectly matched, and add slowly the RAM module into the slot.
2. Push the RAM module right up until the module is snapped in the slot by both side clips.



3. To remove the Memory modules, please push the clips outwards, and the memory modules will be automatically disengaged.

3.3 Adding 19Vdc Power

BNX-I19 motherboard requires only 19Vdc power, on either the edge 4-pin Jack (red arrow) or internal 2x2 Power Input connector (red box).

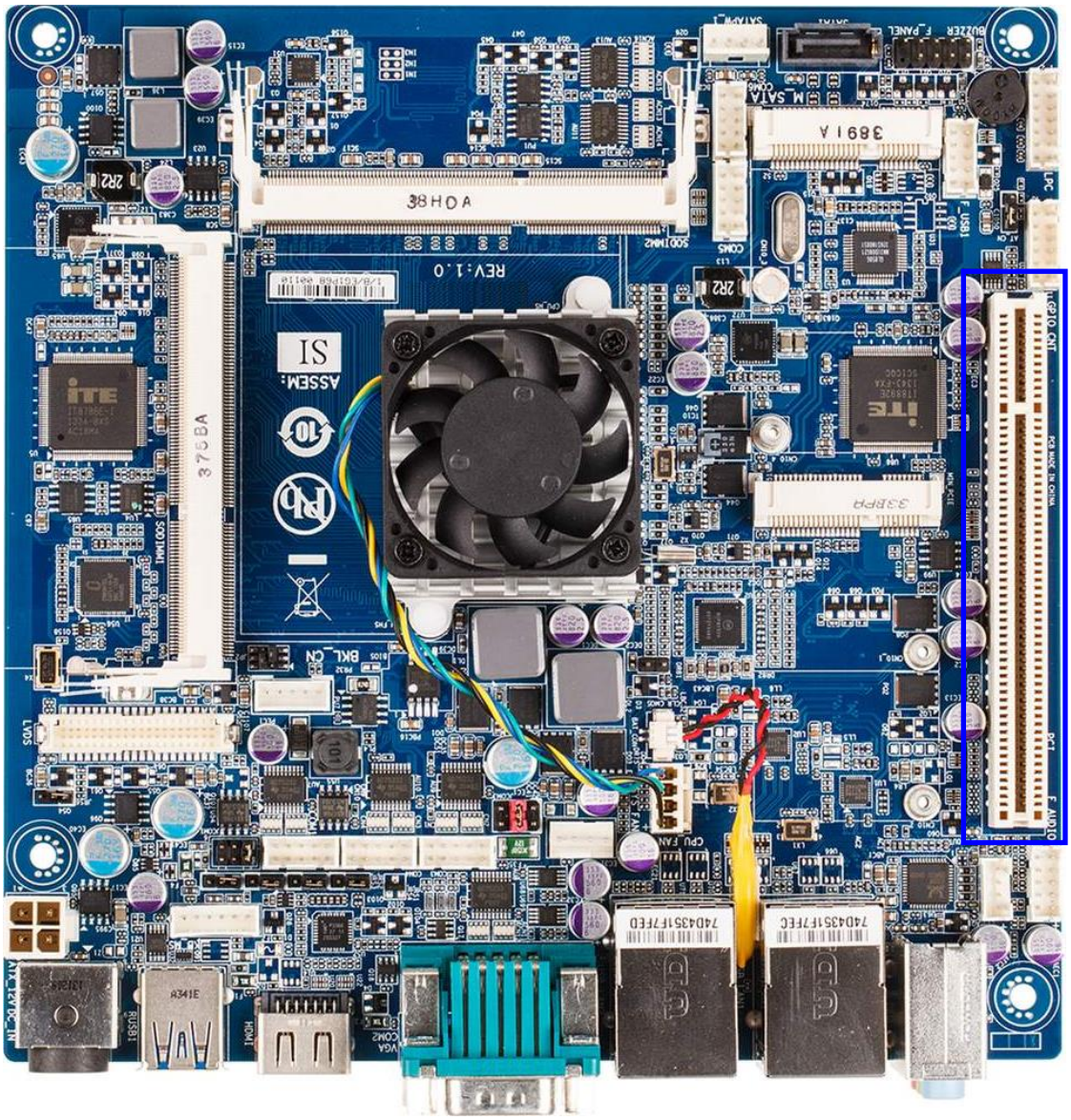


3.4 Adding PCI Card

BNX-I19 motherboard comes with 1* PCI slot. Prior to add your expansion card onto these slots, please:

(1) Identify the type of expansion card to be added. In the picture below:

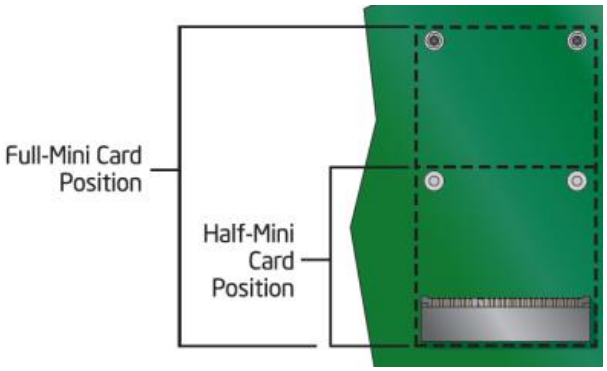
Color	Definition	Signal	Deployment
Blue	1* PCI Slot	PCI Signal	5V or Universal PCI



(2) Shutdown the system (would be nice to cut the power) if system is running.
(3) Plug in the cards and put the power back on.
(4) Please refer to the application notes of user's manual of the expansion card to load driver files or initiate the expansion card.

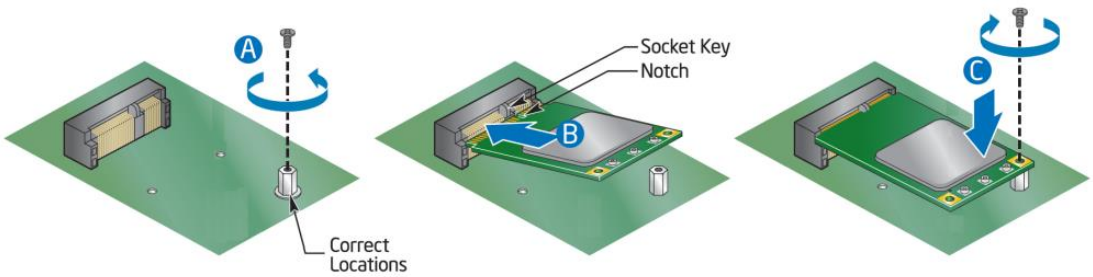
3.5 Install a PCI Express Mini Card in the Full-Mini Card Slot

Please ensure the type of the Full-sized card before adding them onto Full-Mini Card Slot. There are mSATA slot and miniPCIe slot on BNX-I19. Please find the correct slot on page 14 before adding the cards onto the slots.



PCI Express Full-Mini Card Installation:

(A) If a screw is found in the stand-off, please remove the screw.
(B) Align the notch in the card with the socket key and insert the card at a slightly upward angle as shown.
(C) Push down on the card and secure with one screw.



Chapter 4
BIOS Setup

About the BIOS

The BIOS (Basic Input and Output System) Setup program is a menu driven utility that enables you to make changes to the system configuration and tailor your system to suit your individual work needs. It is a ROM-based configuration utility that displays the system's configuration status and provides you with a tool to set system parameters. These parameters are stored in non-volatile battery-backed-up CMOS RAM that saves this information even when the power is turned off. When the system is turned back on, the system is configured with the values stored in CMOS.

With easy-to-use pull down menus, you can configure such items as:

- Hard drives, diskette drives, and peripherals
- Video display type and display options
- Password protection from unauthorized use
- Power management features

When to Run BIOS

This program should be executed under the following conditions:

- When changing the system configurations.
- When a configuration error is detected by the system and you are prompted to make changes to the Setup program.
- When resetting the system clock.
- When setting the CPU clock speed so that it automatically runs either fast or slow.
- When redefining the communication ports to prevent any conflicts.
- When making changes to the Power Management configuration.
- When changing the password or making other changes to the security setup.

Normally, CMOS setup is needed when the system hardware is not consistent with the information contained in the CMOS RAM, whenever the CMOS RAM loses power, or when the system features need to be changed.

When to Update BIOS

In the event that new features are released and a BIOS update is required, you will need to update your BIOS on your own, with the help of an appropriate guide, a reference tool, and some command files for the job.

Please seek for help from your local dealer, or send your request to our technical support department.

4.1 Entering Setup

When the system is powered on, the BIOS will initiate the Power-On-Self-Test (POST) routines. These routines perform various diagnostic checks. If an error is encountered, the error will be reported in one of two different ways:

- If the error occurs before the display device is initialized, a series of beeps will be transmitted.
- If the error occurs after the display device is initialized, the screen will display the error message.

Powering on the computer and immediately pressing <**Del**> allows you to enter Setup. Another way to enter Setup is to power on the computer and wait for the following message during the POST:

TO ENTER SETUP BEFORE BOOT
PRESS <CTRL-ALT-ESC> OR <DEL> KEY

Press the <**Del**> key or press the <**Ctrl**>, <**Alt**>, and <**Esc**> keys to enter Setup.

4.2 Getting Help

The online description of the highlighted setup item is displayed at the right pane of the menu at all time. Press F1 to pop up a small help window that lists all the function keys and its use.

To exit the Help Window, press **<F1>** or **<Esc>.**

4.3 Control Keys

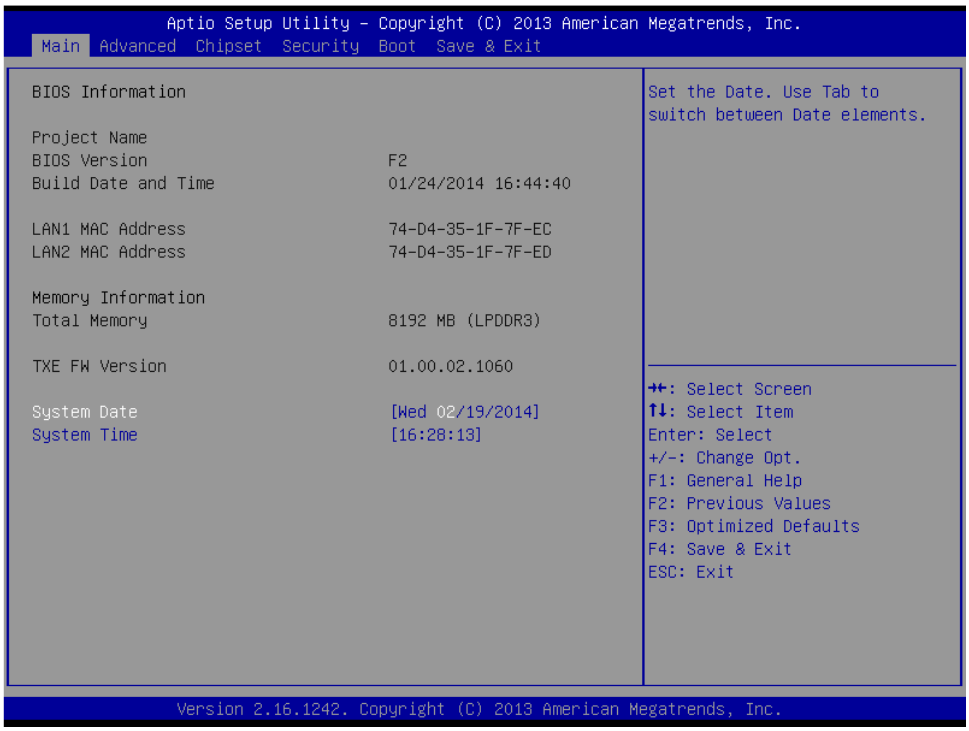
The table below lists all the function keys for the navigation in the BIOS setup menu.

Function Key	**Description**
Up/Down Arrow Key	Move Up/Down
Left/Right Arrow Key	Move Left/Right
Enter Key	Select
+/- Key	Change value
ESC	Exit
F1	General Help
F2	Previous Values
F3	Optimized Defaults
F4	Save & Exit BIOS Setup Menu

To exit the Help Window, press **<F1>** or **<Esc>.**

4.4 The Main Menu

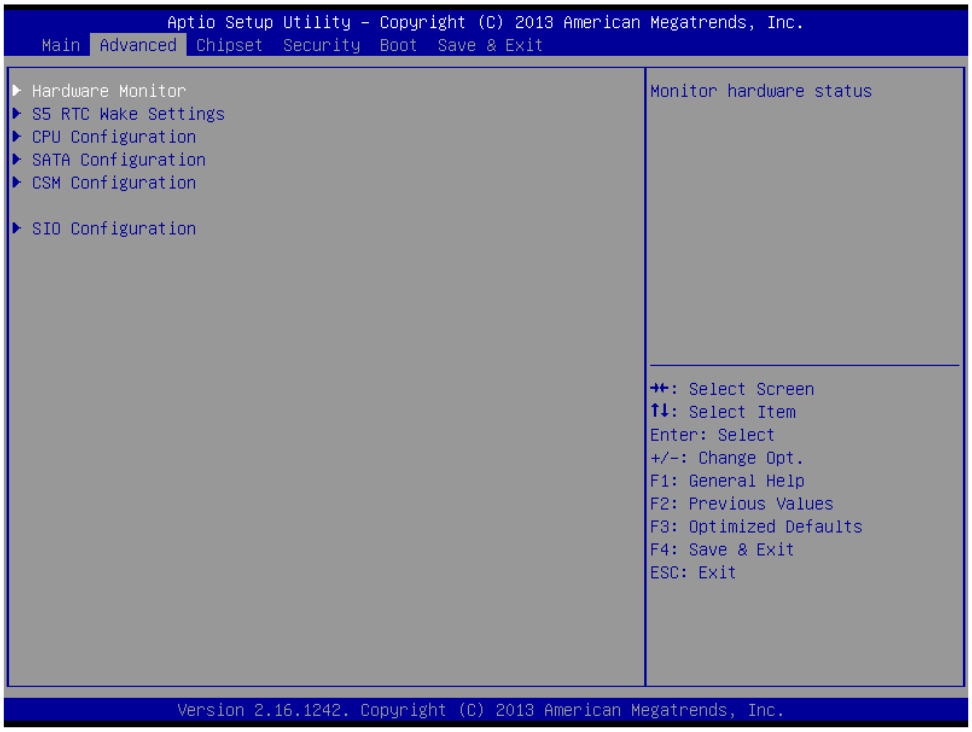
The menu bar on the top of the first screen has the following submenus:


Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
Main Advanced Chipset Security Boot Save & Exit
BIOS Information
Project Name
BIOS Version F2
Build Date and Time 01/24/2014 16:44:40
LAN1 MAC Address 74-D4-35-1F-7F-EC
LAN2 MAC Address 74-D4-35-1F-7F-ED
Memory Information
Total Memory 8192 MB (LPDDR3)
TXE FW Version 01.00.02.1060
System Date [Wed 02/19/2014]
System Time [16:28:13]
Set the Date. Use Tab to switch between Date elements.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.

- **Main:** Basic system configuration.
- **Advanced:** Advanced system settings.
- **Chipset:** Chipset settings
- **Boot:** System boot configuration.
- **Security:** BIOS security settings.
- **Save & Exit:** Exit options as well as loading optimal defaults

System Date [Day xx/xx/xxxx]: Set the system date.
System Time [xx:xx:xx]: Set the system time.

4.5 The Advanced Menu



Hardware Monitor

CPU/System SMART FAN Function

Enable CPU/System Fan Stop Warning function.

Option available: Enabled/Disabled. Default setting is **Enabled**.

CPU/System FAN Fail Detect

Enable/Disable CPU/System FAN Fail Detect function.

Option available: Enabled/Disabled.

Default setting for CPU FAN Fail Detect is **Enabled**.

Default setting for System FAN Fail Detect is **Disabled**.

S5 RTC Wake Settings

Wake system from S5

Enable or disable System wake on alarm event. When enabled, System will wake on the hr:min:sec specified.

Default setting is **Disabled**.

Wake up hour (Note)

Press <+> and <-> to define the wake up hour.

Wake up minute (Note)

Press <+> and <-> to define the wake up minute.

Wake up second (Note)

Press <+> and <-> to define the wake up second.

CPU Configuration

Intel Virtualization Technology

Select whether to enable the Intel Virtualization Technology function. VT allows a single platform to run multiple operating systems in independent partitions.

Options available: Enabled/Disabled. Default setting is **Enabled**.

EIST (Enhanced Intel SpeedStep Technology)

Conventional Intel SpeedStep Technology switches both voltage and frequency in tandem between high and low levels in response to processor load.

Options available: Enabled/Disabled. Default setting is **Enabled**.

Turbo Mode

When this feature is enabled, the processor can dynamically overclock one or two of its four processing cores to improve performance with applications that are not multi-threaded or optimized for quad-core processors.

Options available: Enabled/Disabled. Default setting is **Enabled**.

CPU C State Report

Enable/Disable CPU C State report function.

Options available: Enabled/Disabled. Default setting is **Enabled**.

SATA Configuration

SATA Mode Selection

Select the on chip SATA type.

IDE Mode: When set to IDE, the SATA controller disables its AHCI function and runs in the IDE emulation mode.

AHCI Mode: When set to AHCI, the SATA controller enables its AHCI functionality.

Options available: IDE/AHCI. Default setting is **AHCI Mode**.

Serial ATA Port 1/mSATA Port

The category identifies Serial ATA and mSATA types of hard disk that are installed in the computer.

System will automatically detect HDD type.

Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category.

Hard drive information should be labeled on the outside device casing. Enter the appropriate option based on this information.

CSM Configuration

CSM Support

Enable/Disable Compatibility Support Module (CSM) support function.

Options available: Enabled/Disabled. Default setting is **Disabled**.

Network stack

Enable/Disable UEFI network stack.

Options available: Enabled/Disabled. Default setting is **Disabled**.

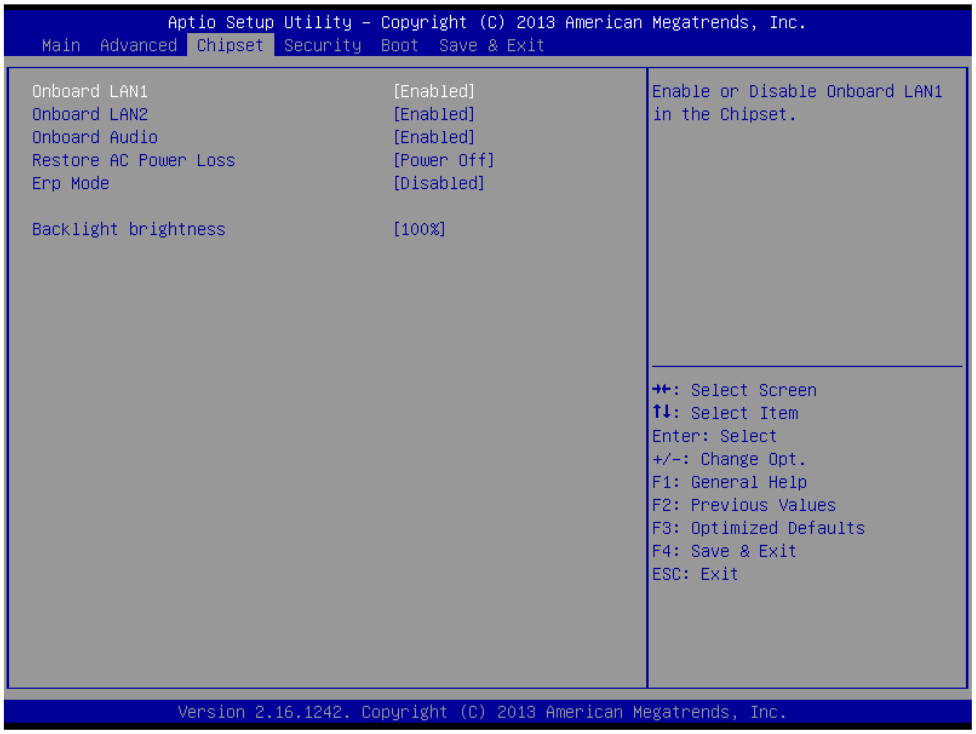
SIO Configuration

Use This Device

When enabled allows you to configure the serial port 1 settings. When set to Disabled, displays no configuration for the serial port.

Options available: Enabled/Disabled. Default setting is **Enabled**.

4.6 The Chipset Menu


Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
Main Advanced Chipset Security Boot Save & Exit
Onboard LAN1 [Enabled]
Onboard LAN2 [Enabled]
Onboard Audio [Enabled]
Restore AC Power Loss [Power Off]
Erp Mode [Disabled]
Backlight brightness [100%]
Enable or Disable Onboard LAN1 in the Chipset.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.

Onboard LAN1/2

Enable/Disable onboard LAN controller.

Options available: Enabled/Disabled. Default setting is **Enabled**.

Onboard Audio

Enable/Disable onboard audio controller.

Options available: Enabled/Disabled. Default setting is **Enabled**.

Restore AC Power Loss

This option provides user to set the mode of operation if an AC / power loss occurs.

Power On: System power state when AC cord is re-plugged.

Power Off: Do not power on system when AC power is back.

Last State: Set system to the last sate when AC power is removed.

Options available: Power On/Power Off/Last State. Default setting is **Power Off**.

Erp Mode

Enable/Disable Erp support function.

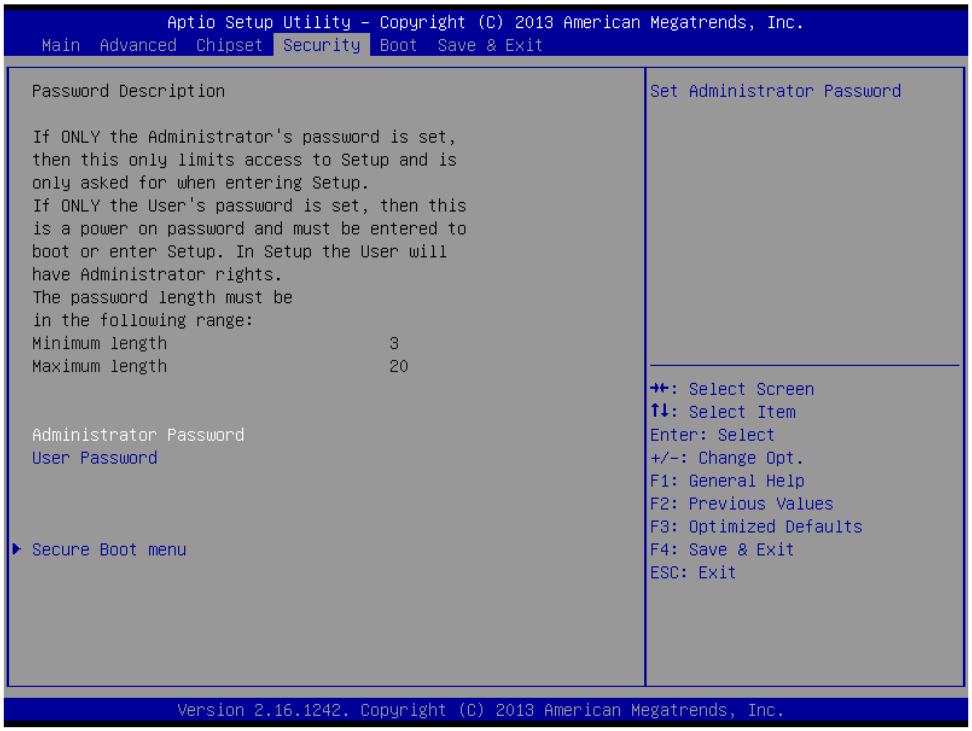
Options available: Enabled/Disabled. Default setting is **Disabled**.

Backlight brightness

Configure the backlight brightness.

Options available: 5%/25%/50%/75%/100%. Default setting is **100%**.

4.7 The Security Menu


Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
Main Advanced Chipset Security Boot Save & Exit
Password Description
If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup.
If ONLY the User's password is set, then this is a power on password and must be entered to boot or enter Setup. In Setup the User will have Administrator rights.
The password length must be in the following range:
Minimum length 3
Maximum length 20
Administrator Password
User Password
Secure Boot menu
Set Administrator Password
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.

There are two types of passwords that you can set:

- Adminstrator Password
  Entering this password will allow the user to access and change all settings in the Setup Utility.
- User Password
  Entering this password will restrict a user's access to the Setup menus. To enable or disable this field, a Administrator Password must first be set. A user can only access and modify the System Time, System Date, and Set User Password fields.

Administrator Password

Press Enter to configure the Administrator password.

User Password

Press Enter to configure the user password.

Secure Boot Menu

Secure Boot

Secure Boot requires all the applications that are running during the booting process to be pre-signed with valid digital certificates. This way, the system knows all the files being loaded before Windows 8 loads and gets to the login screen have not been tampered with.

Options available: Enabled/Disabled. Default setting is **Disabled**.

Secure Boot Mode(Note)

Define the Secure Boot Mode. Set this item to **Custom** to advanced items configuration.

Option available: Standard/Custom. Default setting is **Custom**.

Key Management

Default Key Provisioning

Force the system to Setup Mode. This will clear all Secure Boot Variables such as Platform Key (PK), Key-exchange Key (KEK), Authorized Signature Database (db), and Forbidden Signaures Database (dbx).

Options available: Enabled/Disabled. Default setting is **Disabled**.

Enroll All Factory Default Keys

Press [Enter] to install all factory default keys.

Save All Secure Boot Variables

Press [Enter] to save all Secure Boot Variables.

Platform Key (PK)

Display the status of Platform Key.

Delete the PK

Press [Enter] to delete the existed PK. Once the PK is deleted, all the system's Secure Boot keys will not be activated.

Set new PK File

Press [Enter] to configure a new PK.

Key Exchange Key Database (KEK)

Display the status of Platform Key.

Delete KEK

Press [Enter] to delete the KEK from your system.

Set new KEK

Press [Enter] to configure a new KEK.

Append Var to KEK

Press [Enter] to load additional KEK from a storage devices for an additional db and dbx management.

Authorized Signature Database (DB)

Display the status of Authorized Signature Database.

Delete DB

Press [Enter] to delete the db from your system.

Set new DB

Press [Enter] to configure a new db.

Append aVar to DB

Press [Enter] to load additional db from a storage devices.

Forbidden Signature Database (DBX)

Display the status of Forbidden Signature Database.

Delete the DBX

Press [Enter] to delete the dbx from your system.

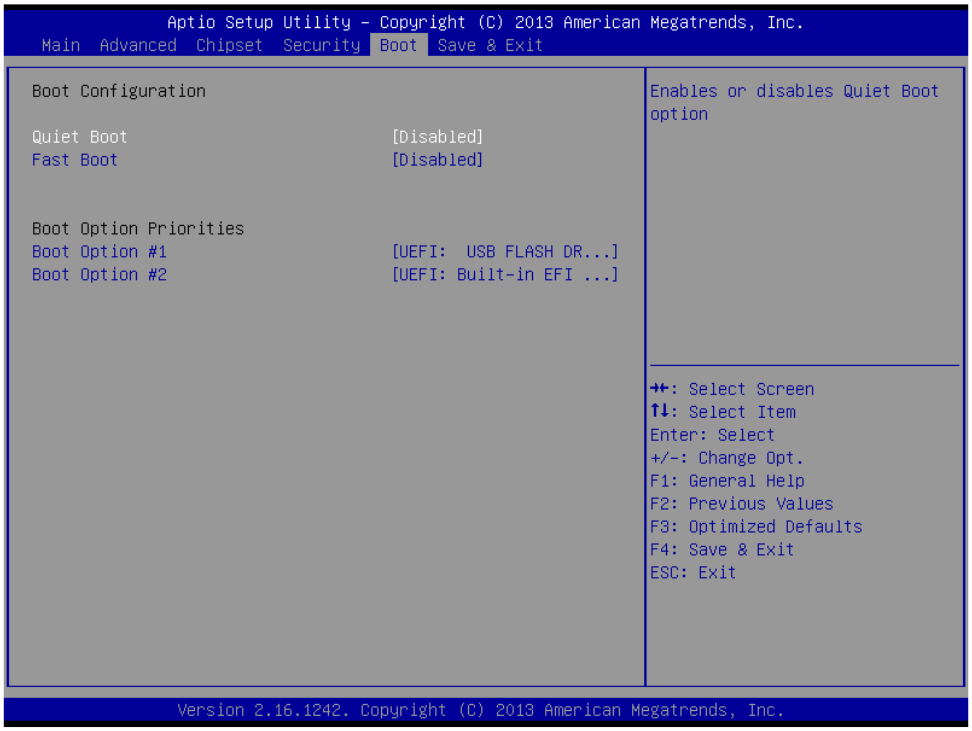
Set DBX from File

Press [Enter] to configure a new dbx.

Append Var to DBX

Press [Enter] to load additional db from a storage devices.

4.8 The Boot Menu


Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
Main Advanced Chipset Security Boot Save & Exit
Boot Configuration
Quiet Boot [Disabled]
Fast Boot [Disabled]
Boot Option Priorities
Boot Option #1 [UEFI: USB FLASH DR...]
Boot Option #2 [UEFI: Built-in EFI ...]
Enables or disables Quiet Boot option
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
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Quiet Boot

Enables or disables showing the logo during POST.

Options available: Enabled/Disabled. Default setting is **Disabled**.

Fast Boot

This BIOS feature allows you to decrease the time it takes to boot up the system by skipping certain booting procedures.

Options available: Enabled/Disabled. Default setting is **Disabled**.

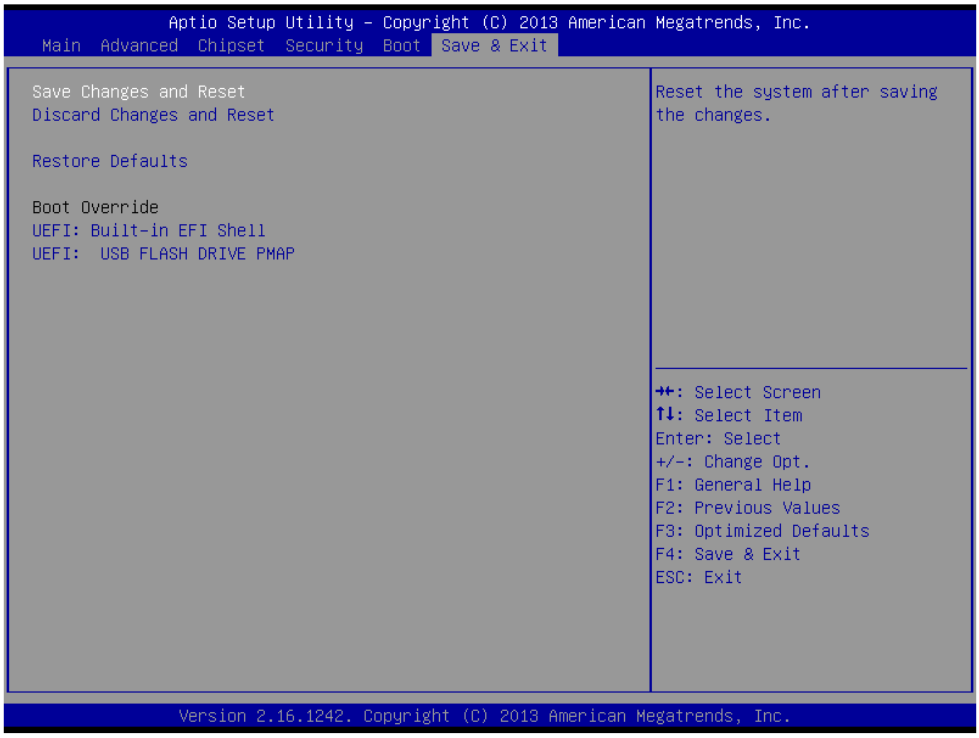
Boot Option #1/#2

Press Enter to configure the boot priority.

By default, the server searches for boot devices in the following sequence:

1. UEFI device.
2. Hard drive

4.9 The Save and Exit Menu


Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
Main Advanced Chipset Security Boot Save & Exit
Save Changes and Reset
Discard Changes and Reset
Restore Defaults
Boot Override
UEFI: Built-in EFI Shell
UEFI: USB FLASH DRIVE PMAP
Reset the system after saving the changes.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
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Save Changes and Reset

Saves changes made and close the BIOS setup.

Options available: Yes/No.

Discard Changes and Reset

Discards changes made and close the BIOS setup.

Options available: Yes/No.

Restore Defaults

Loads the default settings for all BIOS setup parameters. Setup Defaults are quite demanding in terms of resources consumption. If you are using low-speed memory chips or other kinds of low-performance components and you choose to load these settings, the system might not function properly.

Options available: Yes/No.

Boot Override

Press Enter to configure the device as the boot-up drive.

UEFI: Built-in in EFI Shell

Press <Enter> on this item to Launch EFI Shell from file system device.